Inventors: Thomas B. Kinney et al.
Title: Remote Fieldbus Messaging via
          Internet Applet/ Servlet Pairs
Filed.   11/114/01
Sheet 1 of 7   Attorney Docket No 206214
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109

110

111

115

103

101

107

113

117

119

Internet

121

FIG. 1

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Filed.   11/114/01
Sheet 2 of 7   Attorney Docket No. 206214
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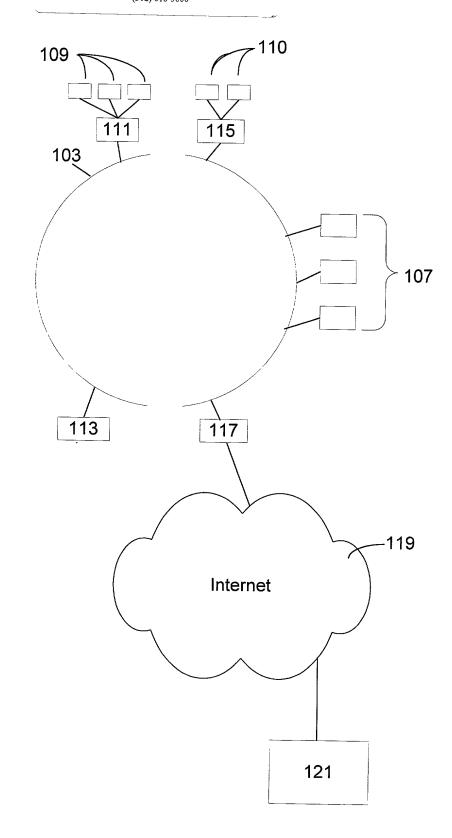   (312) 616-5600

USER APPLICATION — 209

FIELDBUS MESSAGING SPECIFICATION (FMS) — 203

FIELDBUS ACCESS SUBLAYER (FAS) — 205

DATA LINK LAYER (DLL) — 207

201

PHYSICAL LAYER — 211

FIG. 2

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Filed: 11/114/01
Sheet 3 of 7 Attorney Docket No 206214
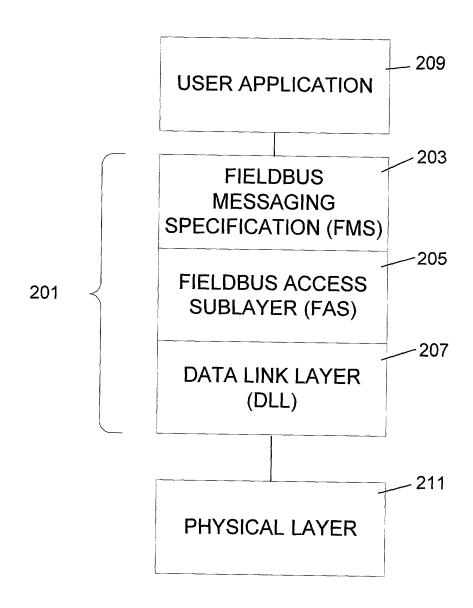Leydig, Voit & Mayer, Ltd.
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FIG. 3

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Sheet 4 of 7   Attorney Docket No. 206214
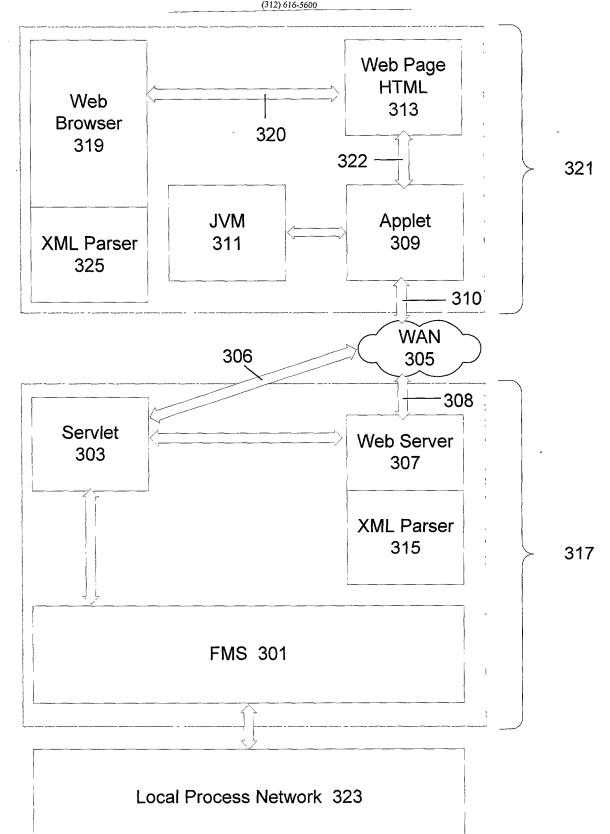   Leydig, Voit & Mayer, Ltd.
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401 — Browser invoked on
      remote computer

403 — Remote user accesses
      page containing applet
      via browser

405 — Browser parses page

407 — Browser identifies tag
      signifying existence and
      identity of applet

409 — Browser retrieves and
      invokes applet

411 — Applet contacts web
      server requesting the
      services of the servlet

413 — Web server invokes
      servlet

415 — Servlet establishes
      sockets connection to
      remote computer

FIG. 4

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Filed   11/114/01
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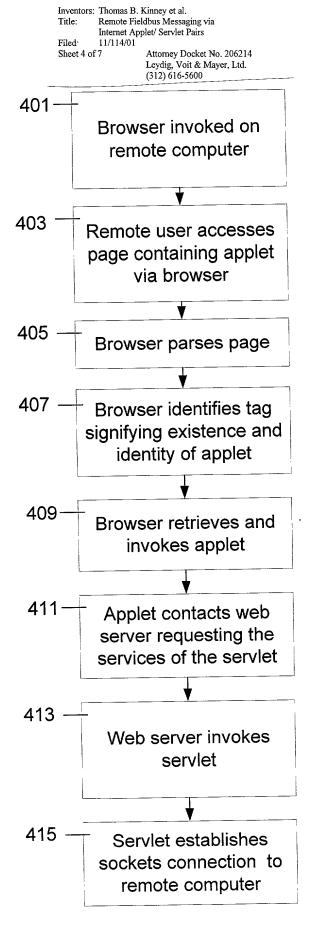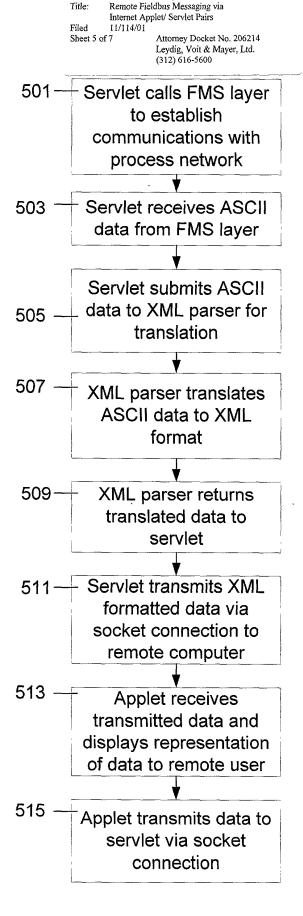   (312) 616-5600

501 — Servlet calls FMS layer to establish communications with process network

↓

503 — Servlet receives ASCII data from FMS layer

↓

505 — Servlet submits ASCII data to XML parser for translation

↓

507 — XML parser translates ASCII data to XML format

↓

509 — XML parser returns translated data to servlet

↓

511 — Servlet transmits XML formatted data via socket connection to remote computer

↓

513 — Applet receives transmitted data and displays representation of data to remote user

↓

515 — Applet transmits data to servlet via socket connection

FIG. 5

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Sheet 6 of 7   Attorney Docket No. 206214
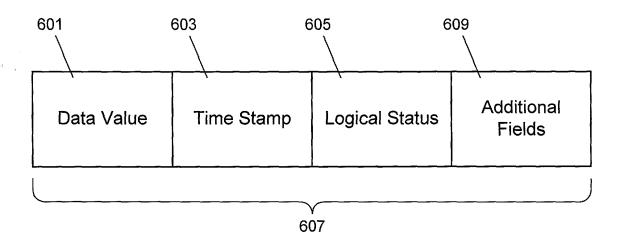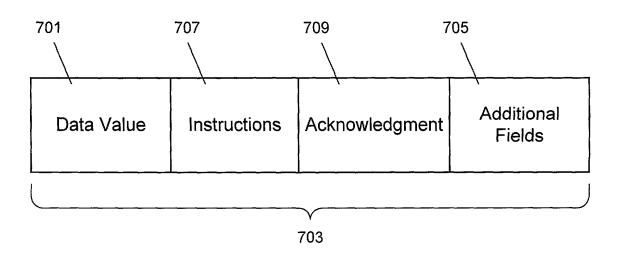Leydig, Voit & Mayer, Ltd.
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601   603   605   609

Data Value	Time Stamp	Logical Status	Additional Fields

607

FIG. 6

701   707   709   705

Data Value	Instructions	Acknowledgment	Additional Fields

703

FIG. 7

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Filed: 11/114/01
Sheet 7 of 7   Attorney Docket No. 206214
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START

801 — Has applet received transmission from servlet within check period?

Yes → Connectivity confirmed; reset timer

811

No

803 — Applet transmits probe message to servlet

805 — Has servlet answered within time-out period?

Yes →

No

807 — Has step 803 been repeated three times?

No →

Yes

809 — Applet generates and displays error message

FIG. 8